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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,080	10/04/2003	Peter J. Ditzel	2003P14602US	3519

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Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER	
ABOAGYE, MICHAEL	

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1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/679,080	**Applicant(s)** DITZEL ET AL.
	Examiner Michael Aboagye	**Art Unit** 1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2007*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-9,12 and 15-22* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-4,7-9,12 and 15-22* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *10/04/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 2 contains a limitation "the melting point depressant material comprising nickel-boron". There is support for "melting point depressant such as boron" in the disclosure, however there is no support for "the melting point depressant material **comprising nickel-boron".**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the limitation calling for "the melting point depressant material comprising nickel-boron" corresponds to the disclosed invention. Furthermore it is unclear how the melting point depressant material referred in here as "nickel-boron" relates to the composite consumable insert.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Cairo et al. (US Patent No. 6,098,871).

Cairo et al. teaches a consumable insert comprising a metal material made of a nickel or nickel based alloy and a melting point depressant material made of boron, wherein the concentration of the boron is highest at the center portion of the consumable insert than other portions (abstract, column 6, lines 33-53 and figure 1).

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryan (US Patent No. 4,700,881).

Ryan teaches a transient liquid phase consumable insert comprising a sheath having Ni upper and lower layer, and a coating of a melting point depressant in the form of the metal boron on the surfaces of the nickel layers so as to be captured in the center in between the nickel layers; wherein a liquid zone occurs in the center; wherein the concentration of the boron is highest at the center portion of the consumable insert than other portions (column 1, lines 51-67, column 2, lines 29-36 and lines 40-46; column 2, line 59-column 3, line 30 and figure 4).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US Patent No. 4,700,881) in view of Sabol et al. (US Patent No. 6,060,174).

Ryan does not expressly teach MCrAlY alloy material.

However Sabol et al. teaches transient liquid phase consumable insert made of MCrAlY alloy material and a boron temperature depressant for joining nickel based alloys to obtain a high quality joint at low cost (Sabol et al. abstract, column 1, lines 57-67; column 2, lines 7-15 and 32-48; and column 4, lines 3-58 and figure 1&2). Note regarding the mechanical properties of the insert, recited in claims 8 and 9, it is noted that the insert of Sabol et al. would posses the same or equivalent properties since it is made of the same material as claimed.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to used MCrAlY alloy material in the consumable insert of Ryan as taught by Sabol et al. to obtain high quality joint at low cost (Sabol et al., column 1, lines 57-67).

9. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US Patent No. 4,700,881) in view of Bampton et al. (US Patent5 No. 5,289,967).

Ryan teaches a method of bonding with a transient liquid phase consumable insert comprising a sheath having Ni upper and lower layer, and a coating of a melting point depressant made of boron on the surfaces of the nickel layers so as to be captured in the center in between the nickel layers; wherein the concentration of the boron is highest at the center portion of the consumable insert than other portions (column 1, lines 51-67, column 2, lines 29-36 and lines 40-46; column 2, line 59-column 3, line 30 and figure 4); wherein the insert is disposed between two nickel or nickel based alloy workpieces and heated to a temperature sufficiently high to melt the insert for a time period sufficient for the melting point depressant to diffuse into the workpieces (column 2, lines 46-67). Ryan also teaches diffusion heat treatment. Note figures 2-4, of Ryan in figure 2, show a consumable insert which is rectangular-shaped, flattened and positioned between the workpieces. There is no suggestion in the specification as to the effect on the shape of the insert on the bonding process; furthermore the shape of the insert would inherently be determined by the form or shape of the two metal components being joined.

Ryan does not expressly teach applying a melting point depressant material in particle form.

However Bampton et al. teaches a method of bonding with a transient liquid phase consumable insert comprising melting point depressant material in a form of particles, powder, foil or coating (Bampton et al., column 1, lines 55-60, column 2, lines 1-17 and figures 1(A-C)).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to apply the melting point depressant material in a form of particles in the method of Ryan as taught by Bampton et al. since said application by particles is an obvious variation of coating which works equally well (Bampton et al., column 1, lines 55-60 and column 5, lines 49-53).

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US Patent No. 4,700,881) in view of Bampton et al. (US Patent5 No. 5,289,967) and Sabol et al. (US Patent No. 6,060,174).

Ryan and Bampton et al. do not expressly teach MCrAlY alloy material.

However Sabol et al. teaches transient liquid phase consumable insert made of MCrAlY alloy material and a boron temperature depressant for joining nickel based alloys to obtain a high quality and joint at low cost (Sabol et al. abstract, column 1, lines 57-67; column 2, lines 7-15 and 32-48; and column 4, lines 3-58 and figure 1&2). Note regarding the mechanical properties of the insert, recited in claims 8 and 9, it is noted that insert of Sabol et al. would posses the same or equivalent properties since they are of the same material as claimed.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to used in the process of Ryan as modified by Bampton et al., a consumable insert comprising MCrAlY alloy material in view of the teachings of Sabol et al. to obtain high quality joint at low cost (Sabol et al., column 1, lines 57-67).

Response to Arguments

11. The examiner acknowledges the applicants' amendment received by USPTO on July 17, 2007. Claims 1-4, 7-9, 12 and 15-22 remain under consideration in this application remain under consideration in the application.

12. Applicant's arguments filed July 17, 2009 have been fully considered but they are not persuasive. With reference to the 35 U.S.C. 112, first paragraph and second paragraph rejections, the applicant cited page 4, lines 17-27 as providing support for nickel-boron melting point depressant. The examiner finds no support as asserted by the applicant. The cited portion of the specification rather discloses a nickel sheath (12) and a melting point depressant (boron, 14). The 35 U.S.C. 112 rejections are therefore maintained.

Regarding Cairo reference, the applicant argues that Cairo teaches away from a consumable insert and that, Cairo does not teach pre-placed foil. Applicant attention is drawn to (Cairo, abstract, column 5, lines 1-5,30-37 and column 6, lines 40-50) which recites placing an interlayer foil having a melting point depressant i.e. boron, between the two spaced apart two metal members.

Regarding Ryan reference, argues that Ryan teaches multiple pre-placing foils, so teaches away from claims 1-4. Applicant attention is drawn to the fact that, the claims recite an insert foil made or an upper layer or sheath, a lower layer and a melting point depressant contained between. Ryan teaches a stack of two foils each having a boron melting point depressant layer at a surface and forming the stack such that the boron layer are stack on top of the other forming a composite foil with an upper layer, a lower layer and the melting point depressant therebetween resulting in a boron rich zone at the center (column 2, lines 29-42, column 3, lines 5-25 and figures 2-4). The examiner believes said structure of Ryan reads on the limitation as claimed in claims 1-4. Ryan in figure 2 shows a consumable insert, which is rectangular-shaped, flattened and positioned between the workpieces. There is no suggestion in the specification as to the effect on the shape of the insert on the bonding process; furthermore the shape of the insert would inherently be determined by the shape or form of the two metal components being joined.

The applicant argues that by combing the inventions of Ryan and Sabol et al. will destroy the Ryan consumable insert. It is noted that, Ryan modified by Sabol et al. only substitutes the nickel boron foil for MCrAlY. Note that the boron composition in the MCrAlY layer disclosed by Sabol et al. is only 1 wt % (see Sabol et al. , column 2, lines 32-43). Besides the expression comprising as recited in claim 7 is open-ended and does not preclude additional elements.

Regarding Bampton et al. reference, the applicant argues Bampton et al. describes the use of a transient liquid consolidation utilizing a powdered bonding agent and that Ryan melting depressant cannot be powder, hence the two references cannot be combined. Applicant's attention is drawn to Bampton et al. (column 5, lines 32-35 and lines 45-53), wherein a foil, powder and coating are recited as obvious variants. It is further noted that the references cannot be considered individually in showing nonobviousness where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091,231 USPQ 375 (Fed. Cir. 1986).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on 571-272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JONATHAN JOHNSON
PRIMARY EXAMINER

Michael Aboagye
Assistant Examiner
Art Unit 1725
10/01/2007

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